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10/501,578

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EXAMINER

DESTA, ELIAS

ART UNIT

PAPER NUMBER

2857

MAIL DATE

DELIVERY MODE

06/30/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|------------------------------------|--|
| Office Action Summary | Application No. 10/501,578 | Applicant(s) MUHL ET AL. | |
| | Examiner ELIAS DESTA | Art Unit 2857 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 4/28/2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3,4,6-15 and 17-22 and 27-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3,4,8,9,12,14,17-20,22 and 27-40 is/are rejected.
- 7) ☒ Claim(s) 6,7,10,11,13,15 and 21 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Detailed Action

Amendment/Remark

1. Applicant's argument (see amendment, filed 4/28/2008), with respect to the rejection(s) of claims 3, 4, 6-15 and 17-22 under 35 U.S.C. 103 has been fully considered and is persuasive. Examiner acknowledges the cancellation of claims 1, 2, 5, 16 and 23-26. The newly added claims 27-40 are accepted. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Park et al. (U.S. Patent 5,929,754, hereon Park).

Explanation of rejection

Claim Objection

2. Claim 17 is objected to because of the following minor informalities: the order of the claim as originally filed comes before the base claim 19. The claim is treated on the merits; however the format of the claim is not consistent with a normal claim arrangement. Appropriate claim dependency is required.

Claim rejection – 35 U.S.C. 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) The invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United

States.

4. Claims 3, 4, 8, 9, 12, 14, 17-20, 22 and 27-32 are rejected under 35

U.S.C. 102(b) as anticipated by Park.

In reference to claims 3, 18 and 19: Park teaches a measuring system for determining a property of oil from a dielectric property of the oil (see Park, column 6, lines 38-47). The system includes: first sensor for measuring an electric capacitance (see Park, Fig. 7, sensing capacitor); and a second sensor for measuring a temperature (see Park, Fig. 4 and column 6, lines 48-57), wherein the first sensor is designed as a dielectric sensor which is immersed in the oil (motor) (see Park, column 6, lines 38-47); wherein the first and second sensors are each connected to analyzer device which assigns a value of property to be determined to a measured temperature value a measured temperature value and a measured electric capacitance value (see Park, column 5, lines 9-21 and column 6, lines 44-57), wherein the property to be determined includes an aging state of the oil (engine oil) (see Park, column 5, lines 33-43); wherein the value of the electric capacitance measured by the dielectric sensor is compared in a comparator device of the analyzer device with stored reference value assigned to the measured temperature value, and the signal is output as a function of whether the reference value is reached or exceeded (see Park, Fig. 5, column 7, lines 4-56). The first sensor is a capacitor having a conductive feeder lines disposed on an insulating substrate (see Park, column 8, lines 33-46) (claim 18). The compensation device takes calibrating measurements of the first and second properties (dielectric and temperature values) (see Park, column 7, lines 15-52) (claim 19).

In reference to claims 4 and 14: *Park* teaches a measuring system for determining a property of oil from a dielectric property of the oil (see *Park*, column 6, lines 38-47). The system includes: a first sensor for measuring an electric capacitance (see *Park*, column 5, lines 9-21) and a second sensor for measuring a temperature (see *Park*, column 6, lines 48-57), where in the first sensor is designed as a dielectric sensor (see *Park*, column 6, lines 38-48) which is immersed in the engine oil and has a stray filled capacitor (see *Park*, column 8, lines 22-31) which functions as the measuring capacitor, and a second sensor is designed as a temperature sensor which is immersed in the oil (see *Park*, column 5, lines 55-61); and a compensation device for correcting the measured values of the electric capacitance, taking into account a capacitance reference value measured on an auxiliary capacitor situated in proximity to the measuring capacitor (see *Park*, column 5, lines 32-43), wherein the corrected measured value of the electric capacitance and the temperature measured by the second sensor are used to determine an aging state of the oil (see *Park*, column 6, lines 25-57).

With regard to claim 8: *Park* further teaches that the measuring capacitor is formed by a plurality of plat printed conductors in the form of inter-digital capacitor because the sensor is designed using a hybrid circuit and the system includes analog and digital circuits where the form of inter-digital capacitor would have been an inherent design feature (see *Park*, column 5, lines 33-43).

With regard to claims 9 and 12: *Park* further teaches that the printed conductors are printed on an insulating substrate by thin film or thick film method (see *Park*, column 8, lines 35-46).

With regard to claim 17: Park further teaches that the first sensor includes a dielectric sensor and first property is a capacitance of the oil (see Park, column 7, lines 43-53) and said second sensor includes a temperature sensor and said second property is a temperature of the oil (see Park, column 7, lines 16-43).

With regard to claim 20: Park further teaches that compensation device is an auxiliary capacitor disposed in proximity to the first sensor (see Park, Fig. 7, oil DETE circuit).

With regard to claim 22: Park further teaches that the first sensor is structurally attached to the second sensor (see Park, Fig. 1, contained in one structural hybrid unit).

In reference to claim 27: Park teaches a measurement assembly to determine a characteristic of a fluid (engine oil) (see Park, column 6, lines 38-47). The assembly includes: a first sensor to measure an electrical capacitance (see Park, Fig. 7, sensing capacitor); a second sensor for temperature measurement ((see Park, Fig. 4 and column 6, lines 48-57), wherein the first sensor is wherein the first sensor is designed as a dielectric sensor which is immersed in the fluid (or motor oil) (see Park, column 6, lines 38-47); an auxiliary capacitor, wherein the capacitance of the auxiliary capacitor changes on the basis of external influences in the same sense as the capacitance of the supply lines of the measurement capacitor (see Park, column 6, line 38-48); and a compensation device to correct the measured value of the electrical capacitance of the measurement capacitor taking into account a reference value of the capacitance measured in the auxiliary capacitor arranged in the vicinity of the measurement capacitor (see Park, column 4, lines 57-67), wherein, on introduction of the dielectric

sensor into the fluid, the auxiliary capacitor is immersed in the fluid at the earliest when the measurement capacitor is fully immersed in the fluid because C_{ref} includes C_r which varies with the oil dielectric property as a function of temperature and a fixed reference value associated with the oil at the starting point (see Park, column 4, lines 60-64).

With regard to claims 28-30: Park further teaches that the characteristic is an aging state of the fluid (motor oil) (see Park, column 1, lines 5-10).

With regard to claim 31: Park further teaches that the first and second sensors are connected with analysis device which allocates a value of the characteristic to be determined to a measured temperature value and to a measured electrical capacitance value (see Park, Fig. 6 and column 6, lines 25-57).

With regard to claim 32: Park further teaches that the comparison device takes the electrical capacitance measured by the dielectric sensor and compares with the stored reference value allocated to the measured temperature value and a signal is outputted as a function of reaching or exceeding the reference value (see Park, column 6, lines 44-56).

5. Claims 33-40 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Park

With regard to claim 33-40: Park further teaches a high-sensitivity capacitive oil deterioration and level sensor that includes a conductive housing member with an inner surface defining a ground electrode and conductive inner surface and adapted to employ capacitor geometry to generate signals indicative of degree of deterioration and

a level of the oil within the gap (see Park, Fig. 1 and column 4, lines 29-42). The assembly is done using hybrid circuit within the housing member (see Park, column 33-42); all the features noted in claims 33-40 are the elements of the construction of the sub devices which would have been obvious to an ordinary skill in the art at the time the invention was made to have such an arrangement and features given the circuit shown in Fig. 4 includes all the elements implemented on the same chip.

Allowable Subject Matter

6. Claims 6, 7, 10, 11, 13, 15 and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

With regard to claim 6: Park does not teach that “the dielectric sensor includes the auxiliary capacitor and on introduction of the dielectric sensor into the oil, the auxiliary capacitor is not immersed in the oil until the measuring capacitor is fully immersed in the oil, wherein feeder lines of the measuring capacitor and the auxiliary capacitors are identical in design and are arranged in mutual symmetry.”

With regard to claims 7 and 21: Park does not teach an “... auxiliary capacitor is composed of at least on spur line which ends upstream from the measuring capacitor and is designed and arranged like the feeder lines of the measuring capacitor,” or “...symmetrical with the feeder lines of said measuring capacitor.”

Claim 10 depends on claim 6, claim 11 depends on claim 10, and claim 13 depends on claim 11.

With regard to claim 15: the limitation is similar to what is been noted in claims 6 and 7.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ELIAS DESTA whose telephone number is (571)272-2214. The examiner can normally be reached on M-Fri (10:30-7:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eliseo Ramos-Feliciano can be reached on (571)-272-7925. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

8. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Elias Desta
Examiner
Art Unit 2857

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- E.D.

/Edward Raymond/

Primary Examiner, Art Unit 2857

- June 20, 2008